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ABSTRACT

This survey of the potential applications of cable television (CATV) at the University of Illinois presents brief overviws of 14 possible kinds of services which might be derived from a CATV system. The purpose of the document is to encourage the development of basic planning for a cable system and to provide information useful to the university's administrative policy-makers. Services which seem sufficiently feasible to receive serious consideration include: 1) the distribution of program material from closed circuit television centers to a wider audience; 2) interconnection with the university's PLATO computer-assisted instructional system; 3) data transmission from the digital computer laboratory; 4) administrative data processing; 5) program pickup and broadcasting; 6) teaching functions in the Department of Radio-TV; 7) news and other programs in foreign languages; 8) extension services for off-campus students; 9) physical plant services monitoring; 10) building and equipment security; 11) medical services; 12) interconnections between the Law School and courtrooms; 13) library services; and 14) general student services. (PB)

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POSSIBLE USES OF CATV AT THE UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN IN THE PERIOD 1973-1980

by Donald P. Mullally

It is difficult to determine how much use there might be (if any) of a CATV system at the University of Illinois due to a host of policy and budgetary considerations which are not relevant to this paper. Therefore, the reader should interpret the term "will" as used herein to be an estimate of what might be seriously considered, rather than a statement of the probable or the certain. The purpose of this document, therefore, is to enable basic planning to proceed so that the proper options will be considered in the initial construction of any CATV system. It is also anticipated that this paper may form a basis for certain internal administrative decisions which are yet to be made. Since the availability of a number of options will certainly affect the decision-making process in the future, it is important to preserve these options as a system is designed and constructed.

It is almost impossible to imagine the time frame of some of the developments discussed herein. The reader must be especially aware of the fact that although some of the developments hypothesized in this paper will almost certainly materialize, the order and timing of these developments is subject to a good deal of variance, depending upon such factors as availability of funds, success or failure of certain research, state-of-the-art with respect to CATV engineering, and a host of unknowns.

CCTV Distribution

One of the earliest uses of a CATV system will be the distribution of program material from the closed circuit center located at WILL-TV. This instructional television system now distributes programs to classrooms in certain buildings. With the addition of dormitories to the system, it seems likely that somewhat more use might be made of closed circuit television. It appears that one of the best potential uses for television is information transfer in the learning situation. Reduction in the number of classroom lectures and the use of TV as the information transfer medium would make available a certain amount of additional faculty time for the discussion of the implications of and relationships between facts transmitted via television. Because videotape would allow repetitive scheduling of TV "lectures" it would be possible to give students a number of exposures to the class material, at times convenient to the student.

Since many students do not live on the campus, it is likely that most early experiments with televised instruction will also make use of one or more channels on the city system to reach off-campus students.

There is some reason to believe that a Federal grant might be obtainable to fund initial research into the repeated-exposure/convenience-scheduling technique.

Somewhat later (perhaps two to three years after the system becomes available) it may be possible to embark on a responsive learning program via CCTV/CATV.

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This would require that students in the response group be provided with a device to enable them to communicate either with a computer, or with the professor directly. The former situation would allow the student to be tested by means of questions appearing either on the TV screen or in printed form; his responses would be translated by a computer. The latter situation would allow a professor to have a certain amount of immediate feedback concerning how well his students are understanding his presentation, even though he is engaged essentially in a lecture situation. Presumably these response devices could be loaned to students in particular classes, thus keeping the investment in such hardware at a relatively low level. Again, it is possible that some Federal or foundation funding might be available either for the purchase of hardware, or for experimentation.

The PLATO IV System

It seems likely that very early in the development of a CATV system, PLATO (the interactive CAI system at the University) will make use of it. While the present number of terminals is only in the hundreds, it is anticipated that within ten years there may be as many as 5,000 terminals in Champaign-Urbana and elsewhere. These terminals will be located on the campus in several buildings, and in the community (probably in schools and at Parkland College). These terminals demand two-way capability, although approximately 1,000 terminals can make use of a single video channel in each direction. This system has proven quite successful, and has generated considerable support from the U.S. Government. It seems quite possible that terminals will be placed at the Chanute Air Force Base in Rantoul, Illinois. Interconnection with any CATV system in Rantoul may therefore be quite desirable.

Computer Data Transmission--Digital Computer Laboratory

There are now a number of remote terminals connected to the IBM 360/70 computer at the Digital Computer Laboratory. These terminals range from complete remote processing facilities to small PLORTS teletypewriter terminals for individual use. It seems reasonable that these terminals will ultimately make use of some of the spectrum space afforded by the CATV cable.

Data Transmission--Administrative Data Processing

The University may find it desirable to initiate an inventory control system with a terminal at the Central Receiving Warehouse connected to the ADP computer in the Administration Building.

Other inventory and billing systems might well be tied into this computer via remote terminals: Chemistry Stores, Photographic Stores, etc.

Program Pickup: Broadcast Services

Depending upon the quality of the system, the cable may be used to relay remote broadcasts from virtually any point on the campus to WILL-TV and WILL-AM/FM studios for recording or live broadcast.

Teaching Functions: Department of Radio-TV

Upon completion of the studio facilities (which, it is hoped, will be quite well-equipped) some of the teaching functions of the RTV Department could be moved

from WILL-TV to the new studios. These might include basic TV production classes, TV News classes, and others.

Courses in radio news and radio production would presumably also move to the new radio studios provided.

With the use of equipment provided by the franchisee, students in the RTV and other departments might well produce a daily news program for the communities and the campus. Students might also choose to produce other program series as laboratory exercises or as "workshop" experiences. It seems likely that these programs would be available for cable distribution in the local market. Moreover, students would probably take a very active role in programming the community radio station, which should become the audio portion of one of the automated video services.

Foreign Languages and Political Science

Very early in the development of the system, the franchisee will provide several short-wave radio receivers of high quality. The foreign language departments may provide a graduate assistant to tune and record news and other programs in several foreign languages on a daily basis. Also, the English language services of Radio Moscow, Radio Peking, BBC, Voice of America, OIRT (France), and other countries might be provided. This could also be rebroadcast on the Community Radio channel mentioned in the paragraph above.

Extension Service

Depending upon community interest and the availability of funds, the University Extension Service might well provide educational programs or classes via CATV for those members of the community who do not attend the University on a regular basis. These classes could be credit or non-credit courses. When and if this CATV system is interconnected with other systems in the state, such classes could be made available to people everywhere in Illinois.

One specific type of program might be provided by the Agricultural Extension Service. Sessions on gardening and the raising of flowers and edible produce might find wide interest in the community (and in the state, with the coming of interconnection facilities).

Physical Plant Services

It seems likely that at some time in the rather near future the Physical Plant department will obtain equipment for the monitoring of building services: heat, air conditioning, ventilation, electric power, steam pressure, etc. This equipment might be connected to a central monitoring point by means of the cable.

Building and Equipment Security

By means of automatic instrusion alarms and heat/smoke sensors, the University police and fire departments could be alerted to any difficulty in campus buildings. These sensors would presumably use CATV cable to relay data to the appropriate authorities.

Another use of the system, related to security functions, is the possibility of an emergency notification scheme. Upon the development of an emergency on the campus (such as the approach of a tornado, serious bomb threat, etc.) or if it is desired to communicate to the campus community an announcement of significance, a scrambler device would generate hash on all TV channels. This would be periodically interrupted with both audio and video instructions regarding the impending emergency--interrupting programming on all channels at all TV and radio sets connected to the cable.

Similarly, a coded signal could be sent to the homes of all University policemen and firemen (or city police and fire department members) requiring them to report for duty at once. This would not depend upon the home television set being in use at the moment.

Medical Uses

The University medical school may well desire interconnection for either audio/video or data exchange with local or more distant hospitals and clinics. This might be in addition to whatever uses the medical school would make of the PLATO system.

Law School

Quite early in system development it may be desirable to link a room at the University Law School to the County Courthouse in Urbana. Remote pan, tilt, and zoom controls would allow the use of an inconspicuous camera at the rear of the courtroom so that law students could watch trials in progress. These signals would be delivered to the law school only.

Library

Library uses seem especially difficult to predict.

Reduction of the library catalogue to computer storage would allow access to the catalogue at remote points through the use of touch-tone telephone or the response devices mentioned earlier. Catalogue items could be displayed on the home TV screen through the use of a character generator. Whether responses would be unaddressed or individually addressed would depend upon the switchability of the system.

Computerization of check-out/check-in and circulation data would allow each of the several departmental libraries to have terminal devices, linked via the cable, so that all record-keeping could be done at a central point.

General Student Services

There are a number of services to the student community which could be delivered via CATV. For example, schedules of campus events, film and concert program information, instructions for registration, entertainment programs at local commercial establishments, Union menus, dormitory menus, and the like could be flashed on a TV screen repeatedly by means of a relatively inexpensive message wheel or character generator. Events of interest to students could be inexpensively advertised or promoted in this same way.

It is also easy to imagine the use of CATV as a cultural enrichment medium. Programs (either audio alone or audio-video) could be run repetitively to give students additional exposure to the kinds of experiences seldom available on regular radio or TV. These programs might be informal and student-originated (as in the case of student musical groups) or more formally staged events (such as graduate musical recitals, theatre workshop programs, lectures by visiting scholars, or informal conversations with some of the great minds in the campus community. Indeed, one can imagine students appreciating the opportunity of getting exposure to samples of disciplines other than their own. It is conceivable that some of these programs might be shared with the off-campus community, or with students on other campuses as interconnection becomes available.

This discussion of the uses of CATV is intended to merely suggest the range of possibilities. If members of the campus community or potential franchisees have other suggestions, I would be delighted to hear from them. Please address any response to:

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